

I. *Some Accounts of the late great Solar Eclipse on April 22. 1715. mane. Communicated to the Royal-Society from abroad.*

Since the Publication of the large Account we gave in *Phil. Trans.* No. 343. of what was observed in *England*, and particularly at *London*, of this Eclipse, we have received from foreign Parts the following Observations; which seem not unworthy the Acceptance of the Curious. And first Mr. *John Edens*, who has obliged us with the following most particular Relation of the Pike of *Teneriff* and of the Ascent thereto, being on his Voyage to that Island, observed the Eclipse at Sea, in Latitude, by Observation  $34^{\circ}.20'$ , and Longitude  $0^{\text{h}}.54'$ . West from *London*, as he concluded by their Distance and Position from the Island *Forte ventura*, which they soon after fell with. He writes that it began at  $\text{VI}^{\text{h}}.49'$ . and ended at  $\text{VI}^{\text{h}}.47'$ . this latter very exactly, tho' not quite so nice as to the Beginning.

Had this Observer signified what Difference of Meridians there was found between the Place of Observation and the West End of *Forte ventura*, we might, without sensible Error, have concluded the true Longitude, not only of that Island, but also of the Pike of *Teneriff*, where Our Geographers and the Dutch have fixed their first Meridian. But this Gentleman being both able and desirous to render the Publick this sort of Service, we hope from him such further Observations as may put the matter past dispute. He adds that the greatest Darknesh was about  $\frac{1}{2}$  of the Sun's Diameter, or nine Digits on the North side.

From

From *Germany* we have received the following Accounts.

At *Nurenburg*.

The Beginning and greatest Obscurity could not be seen for Clouds, but the End happen'd at  $x^h. 10^{\frac{1}{2}}$ .

At *Hamburg*.

The Beginning was observed at  $viii^h. 57'$ . The greatest Obscurity at  $x^h. 5'. 30''$ , when  $x\frac{1}{2}$  digg. were darkned. The End could not be seen for Clouds.

At *Kiel in Holstein*.

The Beginning  $ix^h. 14'$ . The greatest Obscurity  $x^h. 19'. 20''$ , and the Quantity then eclipsed  $xi$  digg.  $20'$ . The End was at  $x^h. 29'$ .

At *Berlin*.

The Beginning could not be seen for Clouds, but the greatest Obscurity was at 22 min. past Ten, when  $xi$  digg. were eclipsed. The just End was at  $x^h. 34'$ .

At *Franckfort on the Meine*.

The Eclipse began at  $viii^h. 50'$ . The greatest Darkness at  $x^h. 11'$ , but perhaps should be  $x^h. 01$  min. the Digits being  $x$ . and 34 min. The End was observed at 10 min. past Eleven.

By whom these Observations were made, and with what Instruments, we are not as yet informed, but hope they may be exact enough to confirm the *Longitudes* of those several places, which are at present reasonably well known.

Since these there is lately come to Hand a *Dutch* Print entituled *Nouvelles Literaires*, publish'd at the *Hague*, wherein, pag. 404. 405, there is an Account of the Observation of this Eclipse at *Upsal* in *Sweden*, made by *M. Jo. Waller*, Professor of Mathematicks in that University, who was very careful to observe it exactly; the Times being verified by three Clocks perfectly agreeing with one another and with the Sun: but more especially

By a Quadrant of 5 Foot Radius for taking the Sun's Altitude. By this Instrument he has determined the Height of the Pole at *Upsall*  $59^{\circ}.51'54''$ . And by the same, a little before the Beginning of the Eclipse he found the Height of Sun  $39^{\circ}.36'.42''$ . his Clocks then shewing the Hour  $1x^h.47'.50''$ , which proves that they were very near the true Time. At  $x^h.58'.15''$ . the Altitude of the Sun being  $44^{\circ}.17'.29''$ , was the Beginning of the total Darkness, and at  $x^h.2'.24''$ . was the End thereof, *alto sole*  $44^{\circ}.29'.13''$ . so that here the Duration of the total Eclipse was  $4'.9''$ , and the Middle thereof but one third of a Minute after Eleven. And lastly the End is said to have happen'd about 4 Minutes before Noon, the Sun being  $45^{\circ}.42'.6''$ . high: But in this is a manifest Mistake, for it makes the Time of Emerfion, or from the Middle to the End, but  $55'.20''$ ; whereas being so near the Meridian, 'tis certain that this Emerfion was the greater part of the Duration of the whole Eclipse, and consequently more than an Hour. Perhaps the Times might be deduced from the Altitudes only, and then the Mistake might be in supposing the End so much before Noon as it was really after it. However, to prevent all Doubts, we have compared this Observation with what we observed of this Eclipse at *London*, and find that in the Latitude of  $59^{\circ}.50'$ , the Place where the Middle of total Darkness was at  $x^h.0'.20''$ , was near 19 Degrees more Easterly than *London* (that is exactly in the Meridian of *Danzick*) and that the Eclipse began there at  $1x^h.52'\frac{1}{2}$ , and ended at  $x^h.10'$ . Wherefore the Duration could not be  $2^h.7'.50''$ , as the *Editor* of the said *Nouvelles* has publish'd; not considering that the Beginning could not be seen for Clouds, as in the very next Words he assures us.

As to the Darkness, it was such that they could scarce distinguish one another: and besides *Jupiter*, *Mercury* and *Venus*; of the Fixt Stars *Cassiopea*, *Capella*, *Oculus Tauri* and *Orion*, (*Sirius* not being yet risen) were visible. II.